



United States Department of State
Bureau of Political-Military Affairs
Directorate of Defense Trade Controls
Washington, D.C. 20520-0112

In Reply Refer to
DTC Case **TA 1024-04**

Mr. Robert Sperling
a.i. solutions
10001 Derekwood Lane
Lanham, MD 20706

YOUR LETTER DATED: April 21, 2004 (Supplemented by 5/11/04 Email) AGREEMENT
FOR: Technical Assistance
FOREIGN LICENSEE: Centre National d'Etudes Spatiale (CNES) - France COMMODITY:
Technical Data and Defense Services for Technical Assessment
and Mission Qualification During Launch Integration for
NASA's CALIPSO Satellite

Dear Applicant:

The Department of State approves the request as identified subject to the limitations, provisos or other requirements stated below. The agreement may not enter into force until these requirements have been satisfied. Any request for extension must be submitted to the Department for approval no later than 60 days prior to the authorized expiration date.

Sincerely yours,

Peter J. Berry
Director, Office of Defense
Trade Controls Licensing

LIMITATIONS, PROVISOS AND OTHER REQUIREMENTS:

1. This authorization expires December 31, 2008. Prior to signature, the applicant must change Article 3.1.(3) and Additional Terms paragraph 1 to be consistent with this date.
2. Sublicensing is not authorized under this agreement. Prior to signature, the applicant must delete the current text of Additional Terms paragraph 2 and replace with wording to indicate sublicensing is not authorized.

In Reply Refer to
DTC Case TA 1024-04

3. The applicant may not export hardware, software, technical data or defense services against this agreement until all parties have executed the agreement. In accordance with 22 CFR 124.4(a), submit one copy of the signed agreement, revised as may be required herein, to this office no later than 30 days after it enters into force. The applicant must inform DTC within 60 days if deciding not to execute this approved agreement.
4. If the agreement is not executed within one year of this approval, a written report as to the status of the agreement must be submitted to this office on an annual basis until the requirements of 22 CFR 124.4 or 22 CFR 124.5 have been satisfied.
5. Shipment of hardware against this agreement under the provisions of 22 CFR 123.16(b)(l) or by separate license (i.e., DSP-5, DSP-73) is not authorized. Hardware shipment may take place only after the Department of State approves an amendment to the agreement.
6. NASA indicates the launch is scheduled for April 2005. Prior to signature, applicant MUST change the second WHERAS statement in the agreement to reflect this date.
7. Prior to signature, the applicant MUST replace the first sentence of the seventh paragraph of the agreement from "CNES has contracted with Alcatel, ..." to "CNES has contracted with Alcatel, the builder of the PROTEUS spacecraft bus, for the CALIPSO spacecraft bus. CNES contracted with European Aeronautic Defense and Space (EADS) Sodern for the Imaging Infrared Radiometer (IIR)."
8. Prior to signature, the applicant MUST change the first sentence of Article 3.1.(l) to read "... with the French CALIPSO payload satellite partner CNES."
9. The applicant MUST NOT release detailed design data or concepts, design methodology or manufacturing know-how for the Delta-II launch vehicle, components and ground support equipment. Technical procedures (to include the launch vehicle countdown procedure) that are launch vehicle specific MUST NOT be released.
10. The applicant MUST NOT provide any technical assistance to the consignee(s) which might assist the consignee(s) in the design, development or enhancement of contemplated or existing space systems, launch facilities or launch processes/operations.

11. All anomaly/problem resolution **MUST** be accomplished strictly by the responsible parties. Collaborative failure analysis with foreign parties is **NOT** authorized.

Anomaly/nonconformance/failure reports released **MUST** be limited to functional block diagrams; top-level descriptions and drawings/schematics that do **NOT** reveal detailed design. Data released **MUST NOT** contain systems engineering processes, techniques or methodologies.

12. The applicant's independent analyses products or test data released **MUST** be limited to results only. Design or technical analysis tools or methods of assessment (models, algorithms, databases, or software), which are **NOT** in the public domain **MUST NOT** be offered or released.

13. Information on U.S. Government (USG) systems, operations, limitations, or capabilities that is **NOT** already in the public domain **MUST NOT** be offered, discussed or released.

14. Launch failure analysis or investigation **MUST NOT** occur under this license. In case of a launch failure, discussions or transfer of any technical data **MUST** be the subject of a separate license submitted for Department of State approval.

15. Technical meetings and activities between the applicant and the foreign consignee may be attended and observed by other US parties. However, the other US parties **MUST NOT** actively participate in those technical activities under this agreement since they are **NOT** signatories to the agreement, unless they have obtained a separate license from the Department of State to cover such activities. The applicant **MUST** inform the other US parties of this restriction.

16. There **MUST BE NO** unmonitored or unescorted access to the launch vehicle or any controlled equipment or technical data related to the launch, unless otherwise authorized by a license. Whenever foreign nationals are present, monitoring **MUST BE** on a 24-hour basis by U.S. participants throughout launch preparations, satellite mating/demating, test and checkout, launch and debris recovery.

17. The applicant **MUST** maintain a library of released technical data subject to USG inspection and audit. The cost of DoD participation in any audit performed by the USG is reimbursable to the DoD.



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The better.™*

Mr. Peter J. Berry
Director, Office of Defense Trade Controls Licensing
2401 E Street N.W., Suite 1200 (SA-1)
Washington, DC 20522-0112

April 21, 2004

PM/DTC Applicant Code 040814379

Subject: Proposed Technical Assistance Agreement between a.i. solutions Incorporated and Centre National d'Etudes Spatiale (CNES) of France.

Dear Mr. Berry:

Submitted herewith are eight (8) collated copies of this submission package which includes this letter, a certification letter and the proposed Technical Assistance Agreement between a.i. solutions Incorporated and CNES of France. For the transfer of certain technical information and services necessary for the design, manufacturing, qualification, and delivery of for the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite to CNES under its Expendable Launch Vehicle Integrated Support (ELVIS) contract with Analex Corporation. This agreement is necessary for a.i. solutions to help CNES get the CALIPSO satellite to Vandenberg AFB, California and get it ready for launch.

BACKGROUND

a.i. solutions is the launch support subcontractor under NASA's Expendable Launch Vehicle Integrated Support (ELVIS) contract, NASA Contract NAS10-02026.

The Boeing Corporation will launch CALIPSO under a separate authorization (currently scheduled for launch in March, 2005. NASA has entered into an international agreement with CNES. The CALIPSO mission is led by NASA. The CALIPSO satellite, integrated and tested under CNES' responsibility, will consist of a platform, designed and provided by CNES, carrying a payload, under NASA's responsibility, containing instruments to be provided by both Parties. The payload instrument complement will consist of an Infrared Imaging Radiometer (IIR), provided by CNES, and a lidar and a Wide-Field Camera (WFC) provided by NASA.

Additionally, NASA will provide the storage required and a payload telemetry system to downlink the payload data, the payload onboard computer, and the payload structure. NASA will be responsible for launching the CALIPSO satellite. A.i. solutions Incorporated has an ongoing contract to support NASA Launch Services integration and launch activities. An extract of the relevant parts of the ELVIS Statement of Work (SOW) is attached in Exhibit 1, Annex C.

a. i. solutions, Inc. role will be to provide rapid, accurate, and complete assessments of analytical items throughout the life cycle for CALIPSO and build cycle for the vehicle. a. i. solutions, Inc. shall perform a review of Launch Service Provider (LSP) provided documents in order to ensure prompt technical assessments of all relevant issues that arise during the integration process. Evaluation of these issues may require a. i. solutions, Inc. to perform an

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independent analysis in order to verify or better understand the Launch Service Provider (LSP) data. Documentation of evaluations and recommendations to NASA shall be such that NASA approval of analyses and/or direction to the Launch Service Provider (LSP) for corrective actions can be accomplished.

REQUIRED INFORMATION

In accordance with 22 CFR 124.12(a), the following statements are provided:

(a)(1) The PM/DTC applicant code is 010616375.

(a)(2)(i) The foreign licensee is Centre National d'Etudes Spatiale (CNES), a French agency with offices located at 2 place Maurice Quentin, 75 039 Paris Cedex 01, France (<http://www.cnes.fr>).

(a)(2)(ii) The foreign licensee is CNES, located in Paris, France. The scope of this agreement entails a.i. solutions Incorporated performing defense services or disclosing technical data whilst providing on-site support at Vandenberg AFB CA for CNES, assisting CNES in checking out the CALIPSO spacecraft, the Delta II launch vehicle, and the integration of the two.

a.i. solutions will perform technical tasks that place the spacecraft and launch vehicle in a state of readiness to launch. This will require that a.i. solutions and CNES personnel converse and cooperate to solve technical problems as they arise. The nature of these potential problems cannot be precisely stated in advance, so permission to cooperatively resolve the broad range of possible problems must be obtained through the attached Technical Assistance Agreement (TAA) at Exhibit 1.

(a)(3) The equipment and technical data were not derived from any bid or proposal to the U.S. Government. The Delta II was developed for the United States Air Force under the Service's Evolved Expendable Launch Vehicle (EELV) Program.

The NASA program manager familiar with the CALIPSO launch campaign is Mr. John H. Calvert, NASA KSC Code VA-C, (321) 867-6081, Fax: (321) 867-1314. The a.i. solutions person most familiar with CALIPSO is Ms. Marisa Achee. She may be reached at (321) 853-5713 for confirmation and additional insight into the technology and the technical data likely to be used on this contract.

(a)(4) The highest U.S. military security classification of the equipment or technical data to be transferred under this agreement is Unclassified.

(a)(5) None of the data or hardware included is the subject of an invention secrecy order issued by the U.S. Patent and Trademark Office.

(a)(6) The value of the agreement is \$100K maximum, assuming the full ten launches per year allowed for in the ELVIS contract are actually undertaken. It should be noted that this is a maximum number and assumes that all of the services described in the ELVIS Statement of Work are indeed provided.

The amount is based on the actuals to date. The total is based upon an estimate of 8 missions per year, of which CALIPSO is one.

Defense articles intended for export in furtherance of this agreement will be shipped by separate license.

In compliance with 22 CFR 130.9 a.i. solutions incorporated certifies that no political contributions in an aggregate amount of \$5,000 or more, or fees or commissions in an aggregate amount of \$100,000 or more, have been or will be paid with respect to this agreement.

(a)(7) No Foreign Military Sales credits or loan guarantees are or will be involved in financing the agreement.

(a)(8) There will be no classified information transferred under this agreement.

(a)(9) There will be no classified information transferred under this agreement.

REQUIRED STATEMENTS

In accordance with 22 CFR 124.12(b), the following statements are provided:

(b)(1) If this agreement is approved by the Department of State, such approval will not be construed by a.i. solutions as passing on the legality of the agreement from the standpoint of antitrust laws or other applicable statutes, nor will a.i. solutions construe the Department's approval or disapproval of any business terms or conditions between the parties to the agreement.

(b)(2) a.i. solutions will not permit the proposed agreement to enter into force until it has been approved by the Department of State.

(b)(3) a.i. solutions will furnish the Department of State with one (1) copy of the signed agreement within 30 days from the date that the agreement is concluded and will inform the Department of its termination not less than 30 days prior to the expiration and provide information on the continuation of any foreign rights or the flow of technical data to the foreign party. If a decision is made not to conclude the proposed agreement, the applicant will so inform the Department of State within 60 days.

(b)(4) If this agreement grants any rights to sub-license, it will be amended to require that all sub-licensing arrangements incorporate all the provisions of the basic agreement that refer to the U.S. Government and the Department of State (i.e., 22 CFR 124.8 and 124.9).

To facilitate U.S. Government consideration of this request, the following provisions required by the ITAR are located in the agreement:

Pursuant to 22 CFR 124.7:

<u>CFR</u> <u>SECTION</u>	<u>AGREEMENT</u> <u>ARTICLE</u>	<u>AGREEMENT</u> <u>PAGE</u>
124.7(1)	I	Page 2 of 4
124.7(2)	I	Page 2 of 4
124.7(3)	I	Page 3 of 4
124.7(4)	I	Page 3 of 4

Pursuant to 22 CFR 124.8:

<u>CFR</u> <u>SECTION</u>	<u>AGREEMENT</u> <u>ARTICLE</u>	<u>AGREEMENT</u> <u>PAGE</u>
124.8(1)	II	Page 3 of 4
124.8(2)	II	Page 3 of 4
124.8(3)	II	Page 3 of 4
124.8(4)	II	Page 3 of 4
124.8(5)	II	Page 3 of 4
124.8(6)	II	Page 3 of 4

This agreement relates to U.S. Munitions List Category XV(e) and (f), "Space Systems and Associated Equipment;" Specifically designed or modified components, parts, accessories; technical data and defense services. These categories are not designated as Significant Military Equipment (SME.)

A Non-Transfer and Use Certificate, Form DSP-83, as required for the transfer of SME, classified articles or classified technical data is not attached in accordance with ITAR 124.10..

Congressional notification is not required.

Prior Approval or Prior Notification per ITAR 126.8 does not apply.

Please contact the undersigned or Ms. Marisa Achee of a.i. solutions Incorporated at our Kennedy Space Center office (321) 853-5713 or AcheeML@kscems.ksc.nasa.gov, if you require further information regarding the proposed Technical Assistance Agreement.

Sincerely,

Robert Sperling
President/Chief Executive Officer
a. i. solutions, Incorporated
(301) 306-1756 x104

Attachments:

Certification Letter

Exhibit 1 - Proposed Technical Assistance Agreement

Annex A - CALIPSO Memorandum of Understanding

Annex B - Joint Mission Implementation Plan (Draft)

Annex C - Extract of ELVIS Statement of Work

Exhibit 2 - Supporting Technical Data

Exhibit 3 - List of Technical Documents

Exhibit 4 - Technology Transfer Control Plan



April 21, 2004

Mr. Peter J. Berry
Director, Office of Defense Trade Controls Licensing
2401 E Street N.W., Suite 1200 (SA-1)
Washington, DC 20522-0112

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Dear Mr. Berry:

I, the undersigned, am a U.S. person as defined in 22 CFR 120.15 and I am a responsible official empowered by the applicant to certify the following in compliance with 22 CFR 126.13:

1. Neither the applicant, its chief executive officer, president, vice-presidents, other senior officers or officials (e.g., comptroller, treasurer, general counsel) nor any member of the board of directors is:

a. The subject of an indictment for or has been convicted of violating any of the U.S. criminal statutes enumerated in § 120.27 of this subchapter since the effective date of the Arms Export Control Act, Public Law 94329, 90 Stat. 729 (June 30, 1976); or

b. Ineligible to contract with, or to receive a license or other approval to import defense articles or defense services from, or to receive an export license or other approval from, any agency of the U.S. Government

2. To the best of the applicant's knowledge, no party to the export as defined in Section 126.7(e) has been convicted of violating any of the U.S. criminal statutes enumerated in 22 CFR 120.27 since the effective date of the Arms Export Control Act, Public Law 94-329, 90 Stat. 729 (June 30, 1976), or is ineligible to contract with, or to receive a license or other approval to import defense articles or defense services from, or to receive an export license or other approval from any agency of the U.S. government, and

3. The natural person signing the application for the license or other approval is a responsible official who has been empowered by the applicant and is a citizen of the United States.

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Lanham, MD 20706
ph: 301-306-1756
fax: 301-306-1754
www.ai-solutions.com

I have enclosed an original and one (1) copy of an addendum sheet prepared in accordance with 22 CFR 126.13(b) listing the complete names and addresses of all U.S. consignors and freight forwarders and all foreign consignees and foreign intermediate consignees involved in the transaction.

Sincerely,

Robert Sperling
President/Chief Executive Officer
a. i. solutions, Incorporated
(301) 306-1756 x104

Consignors, Freight Forwarders, and Consignee.

U.S. Consignors:

a. i. solutions, Incorporated
A&E, Rm. 1203
MC: Analex-21
Kennedy Space Center, FL 32899

Freight Forwarders:

FedEx World Service Center
2205 W Hwy 520
Cocoa, FL 32926

FedEx World Service Center
Airport Area
3070 Skyway Dr
Santa Maria, CA 93455

Sole Consignee:

Centre National d'Etudes Spatiale
2 place Maurice Quentin
75 039 Paris Cedex 01
France

EXHIBIT 1

Technical Assistance Agreement (TAA)

Technical Assistance Agreement for CALIPSO

This agreement is entered into between a.i. solutions, Incorporated (ais), an entity incorporated in the state of Maryland with offices at 1001 Derekwood Lane, Suite 215, Lanham, MD 20706 and the Centre National d'Etudes Spatiale (CNES), a French agency with offices located at 2 place Maurice Quentin, 75 039 Paris Cedex 01, France (<http://www.cnes.fr>), and is effective upon the date of the last party to sign the agreement.

WHEREAS a.i. solutions will provide technical assessment and mission qualification pre-launch services for the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite to CNES under its Expendable Launch Vehicle Integrated Support (ELVIS) contract with Analex; and

WHEREAS NASA's Langley Research Center in Hampton VA leads and manages CALIPSO for the NASA Earth System Science Pathfinder (ESSP) program and collaborates with the French space agency (CNES), Ball Aerospace and Technologies Corporation (BATC), Hampton University, and the Institute Pierre Simon Laplace (IPSL) in Paris. CALIPSO, scheduled for launch in April 2005, is designed to operate for three years.

WHEREAS CNES is responsible to design, manufacture, produce, and assemble the CALIPSO spacecraft;

NOW THEREFORE, the parties desire to enter into the Technical Assistance Agreement as follows:

1. The National Aeronautics and Space Administration (NASA) has negotiated a formal Memorandum of Understanding or MOU (ANNEX A) with CNES that has the former agree to use its launch services contract to launch the French-built CALIPSO to support its operations once on orbit, checked out, and functioning; and to share the Earth science data that CALIPSO will produce. The MOU calls for the signatories' centers and contractors to produce a detailed breakout of the tasks and responsibilities of the parties called a CALIPSO Project Plan (ANNEX B) that shall be empowered by the MOU and have the force of an international agreement.

CNES has contracted with Alcatel, the builder of the PROTEUS spacecraft bus, for the CALIPSO spacecraft bus. CNES contracted with European Aeronautic Defense and Space (EADS) Sodern for the Imaging Infrared Radiometer (IIR). CNES will integrate the payload and the spacecraft and operate the spacecraft once it is on orbit. (Note: Raytheon is assisting CNES with this task under a separate agreement, TA 2527-02.) BATC will develop the laser detection and ranging (LIDAR) and the Wide-Field Camera (WFC) for CNES to integrate. Hampton University and IPSL will provide Co-Principal Investigators (Co-PIs) to conduct experiments with CALIPSO as described in Exhibit 2.

Analex Corporation has contracted with a. i. solutions, Inc. to provide the on-site payload-to-launch vehicle integration services under the ELVIS contract with NASA's Kennedy Space Center (which operates NASA's facilities at Vandenberg AFB, California.) a. i. solutions, Inc. role will be to provide rapid, accurate, and complete assessments of analytical items throughout

the life cycle for CALIPSO and build cycle for the vehicle. a. i. solutions, Inc. shall perform a review of Launch Service Provider (LSP) provided documents in order to ensure prompt technical assessments of all relevant issues that arise during the integration process. Evaluation of these issues may require a. i. solutions, Inc. to perform an independent analysis in order to verify or better understand the Launch Service Provider (LSP) data. Documentation of evaluations and recommendations to NASA shall be such that NASA approval of analyses and/or direction to the Launch Service Provider (LSP) for corrective actions can be accomplished.

This Technical Assistance Agreement (TAA) is required so that a.i. solutions can carry out its responsibilities. a.i. solutions personnel will perform the work on site at Vandenberg AFB, California to get the Delta launch vehicle and CALIPSO payload integrated and ready for launch, and other tasks required of it by the CALIPSO Project Plan and the ELVIS contract Statement of Work or SOW (ANNEX C).

a.i. solutions must be able to work closely with the U.S. launch services provider, The Boeing Company (Boeing), and with the French payload contractor, CNES. a.i. solutions' work with Boeing and CNES may involve any or all of the services, tasks, and technical data described in the CALIPSO Project Plan and the ELVIS SOW. That is, a.i. solutions must be able to help integrate the spacecraft payload with the launch vehicle, assure its interfaces with ground systems are optimal, solve engineering and technical problems on the spot, and perform other, related work with CNES at Vandenberg.

This TAA does not include Boeing, BATC, or Analex Corporation's subcontractor Science Applications International Corporation (SAIC). BATC and Boeing have their own TAAs with CNES, TA 0293-02, and other U.S. entities will submit their own license or TAA applications as these prove to be necessary.

2. It is understood that this Technical Assistance Agreement is entered into as required under U.S. Government Regulations and as such, it is an independent agreement between the parties, the terms of which will prevail, notwithstanding any conflict or inconsistency that may be contained in other arrangements between the parties on the subject matter.

3. The parties agree to comply with all applicable sections of the International Traffic in Arms Regulations (ITAR) of the U.S. Department of State and that more particularly in accordance with such regulations the following conditions the following conditions apply to this agreement:

I. ITAR Section 124.7

(1) a.i. solutions will work with the French CALIPSO payload satellite partner CNES. a.i. solutions' work with CNES may involve any or all of the services, tasks, and technical data described in the CALIPSO Project Plan and the ELVIS SOW. That is, a.i. solutions must be able to help integrate the spacecraft payload with the launch vehicle, assure its interfaces with ground systems are optimal, solve engineering and technical problems on the spot, and perform other,

related work with CNES at Vandenberg. No hardware will be manufactured or exported under this agreement.

(2) NASA has procured and will provide launch services on a Boeing Delta II heavy-lift vehicle and pre-launch engineering support. This includes providing NASA engineering support for CNES spacecraft design and development (including mission design, associated Interface Control Documents or ICDs, payload processing and integration), identifying and implementing mission unique requirements, providing early orbit engineering support, and providing NASA oversight of the CALIPSO program as needed to satisfy requirements of the ICD. NASA and its contractors will jointly develop and verify ICDs on the interface between CALIPSO and the launch vehicle. a.i. solutions will support NASA with payload integration and testing (I&T) services on the launcher.

Meetings and telephone conversations/conferences will take place as necessary to maintain control of respective areas of responsibility, on an as required basis. As a general rule, no contractors will be in attendance without prior approval, on an as needed basis.

Working Groups will be conducted in accordance with the ELVIS contract.

Reviews and Launch Site Activities will be on an as required basis, and parties will be invited to attend as appropriate.

Technical interface will include ICDs, Contamination control plans, Launch Site Test Plan, Launch Site Procedures, etc., as per the CALIPSO Project Plan and the list of documents at EXHIBIT 3. No hardware will be shipped under this agreement. If it becomes necessary for a.i. solutions to ship hardware to CNES, a separate export license will be applied for.

(3) This TAA is to enter into effect on the date of the final signature and is remain in effect until December 31, 2008.

(4) Technical data will be shared with CNES in France and with their employees in the U.S., mostly if not exclusively at Vandenberg Air Force Base, California and in its vicinity. a.i. solutions will deliver on-site support services to CNES' French personnel at Vandenberg or in its vicinity.

II. ITAR Section 124.8

(1) This agreement shall not enter into force, and shall not be amended or extended without the prior written approval of the Department of State of the U.S. Government.

(2) This agreement is subject to all United States laws and regulations relating to exports and to all administrative acts of the U.S. Government pursuant to such laws and regulations.

(3) The parties to this agreement agree that the obligations contained in this agreement shall not affect the performance of any obligations created by prior contracts or subcontracts which the parties may have individually or collectively with the U.S. Government.

(4) No liability will be incurred by or attributed to the U.S. Government in connection with any possible infringement or privately owned patent or proprietary rights, either domestic or foreign, by reason of the U.S. Government's approval of this agreement.

(5) The technical data or defense service exported from the United States in furtherance of this agreement and any defense article which may be produced or manufactured from such technical data or defense service may not be transferred to a person in a third country or to a national of a third country except as specifically authorized in this agreement unless prior written approval of the Department of State has been obtained.

(6) All provisions in this agreement which refer to the United States Government and the Department of State will remain binding on the parties after the termination of the agreement.

ADDITIONAL TERMS

1. This authorization expires December 31, 2008.

2. Sublicensing is not authorized under this agreement.

3. No shipments of hardware, software, technical data, or defense services may take place until against this agreement until such time as the agreement has been executed by all parties. In accordance with 22 CFR 124.4(a), a copy of the signed agreement, revised as may be required by the Department of State, shall be submitted to the Office of Defense Trade Controls within 30 days from the date that it is signed. If a decision is made not to execute the approved agreement, the applicant shall so inform the Office of Defense Trade Controls within 60 days.

4. If the agreement is not executed within one year of the date of this approval, a written report as to the status of the agreement shall be submitted to the Office of Defense Trade Controls on an annual basis until the requirements of 22 CFR 124.4 or 22 CFR 124.5 have been satisfied.

5. Shipment of hardware against this agreement under the provisions of 22 CFR 123.16(b)(1) or by separate license (i.e., DSP-5) is not authorized'. Hardware shipment may take place only after the Department of State approves an amendment to the agreement.

6. The applicant shall not release detailed design data or concepts, design methodology, or manufacturing know-how for the Delta II launch vehicle, components, and ground support equipment. Technical procedures (to include the launch vehicle countdown procedure) that are launch vehicle specific are not authorized for release.

7. The applicant shall not provide any technical assistance to the consignee(s) who might assist the consignee(s) in the design, development; or enhancement of contemplated or existing space systems, launch facilities, or launch processes/operations.

8. All anomaly/problem resolution shall be accomplished strictly by the responsible parties. Collaborative failure analysis with foreign parties is not authorized. Anomaly/non-conformance/failure reports shall be limited to functional block diagrams, top-level descriptions, and drawings/schematics that do not reveal detailed design. Data shall not contain systems engineering processes, techniques, or methodologies.

9. Information on U.S. Government (USG) systems, operations, limitations, or capabilities that is not already in the public domain shall not be offered, discussed, or released.

10. Launch failure analysis or investigation is not authorized under this license. In case of a launch failure, discussions or transfer of any technical data shall be the subject of a separate license submitted for Department of State approval.

11. There shall be no unmonitored or unescorted access to the launch vehicle or any controlled equipment or technical data related to the launch, unless otherwise authorized by a license. Whenever foreign nationals are present, monitoring shall be on a 24-hour basis by U.S. participants throughout launch preparations, satellite mating/demating, test and checkout, launch, and debris recovery.

12. The applicant shall maintain a library of released technical data subject to USG inspection and audit. The cost of DOD participation in any audit performed by the USG is reimbursable to the DOD.

14. Applicant shall provide NASA HQ, Code ID/John F. Hall, Esq., 300 E. Street, SW, Washington, D.C. 20546, with a copy of this Department of State approval memo (license), and signed Technical Assistance Agreement.

15. Applicant understands that NASA-controlled technical data listed in this TAA will be approved for transfer. Transfer of other NASA non-public-domain technical data in support of this TAA requires NASA approval. Applicant will contact Mr. John F. Hall, Esq. for approval (phone: 202-358-2070, fax: 202-358-4080, e-mail: john.f.hall@nasa.gov).

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed effective as of the day and year above provided.

Centre National d'Etudes Spatiale

a.i. solutions, Inc.

By: _____

By: _____

(printed/typed name)

(printed/typed name)

Title: _____

Title: _____

Date: _____

Date: _____

ANNEX A

CALIPSO Memorandum of Understanding (MOU)

Between NASA and CNES

ANNEX B

CNES/NASA Calipso Project Plan

ANNEX C

NASA KSC / a.i. solutions, Incorporated

**Expendable Launch Vehicle Integrated Services
(ELVIS) Contract Statement of Work (SOW)**

ANNEX C

1.0 Mission Analysis

a. i. solutions, Inc. shall provide rapid, accurate, and complete assessments of analytical items throughout the life cycle for each NASA mission and build cycle for each NASA vehicle. a. i. solutions, Inc. shall perform reviews of Launch Service Provider (LSP) provided documents in order to ensure prompt technical assessments of all relevant issues that arise during the integration process. Evaluation of these issues may require a. i. solutions, Inc. to perform an independent analysis in order to verify or better understand the Launch Service Provider (LSP) data. Documentation of evaluations and recommendations to NASA shall be such that NASA approval of analyses and/or direction to the Launch Service Provider (LSP) for corrective actions can be accomplished. The analytical areas that shall be covered include the following:

- Loads and Structural Dynamics
- Dynamic Environments
- Stress
- Flight Design
- Flight Software
- Controls and Stability
- Thermal/Thermodynamics
- Electromagnetic Compatibility
- CFD/Aerodynamics

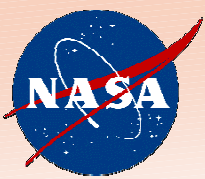
a. i. solutions, Inc. shall evaluate Launch Service Provider (LSP) analyses for compliance with applicable mission and vehicle requirements for each of the disciplines listed above so that the NASA Vehicle Engineering Division can provide prompt approval of mission unique items and a knowledgeable “go/no go” for NASA missions. A. i. solutions, Inc. shall evaluate and provide technical assessments to NASA of the relevant Launch Service Provider (LSP) Contract Data Requirements List (CDRL), vehicle system design, testing (such as that required for flight software or environments), robustness in the areas of performance and reliability, and post flight data.

For all of the disciplines listed above, specific technical expertise required by a. i. solutions, Inc. shall include the ability to:

- Develop and create complex vehicle models
- Simulate these models using relevant code
- Modify or update analytical code as required
- Understand the Launch Service Provider (LSP) tools and models such that input and output files can be reviewed efficiently and accurately.
- Review incoming reports and perform analytical checks as required

EXHIBIT 2

Supporting Technical Data on Centre National d'Etudes Spatiales CALIPSO Sensor Description



Mission Partners



Selected in December 1998 as the 3rd NASA Earth System Science Pathfinder (ESSP) mission, a partnership involving:



NASA Langley Research Center: mission lead, project management, systems engineering, payload mission operations, data validation, data processing and archival



Centre National d'Etudes Spatiales: providing Alcatel PROTEUS spacecraft and Imaging Infrared Radiometer (IIR), payload-to-spacecraft integration, spacecraft mission operations



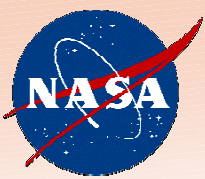
Hampton University: Level 2 algorithm implementation, educational and public outreach



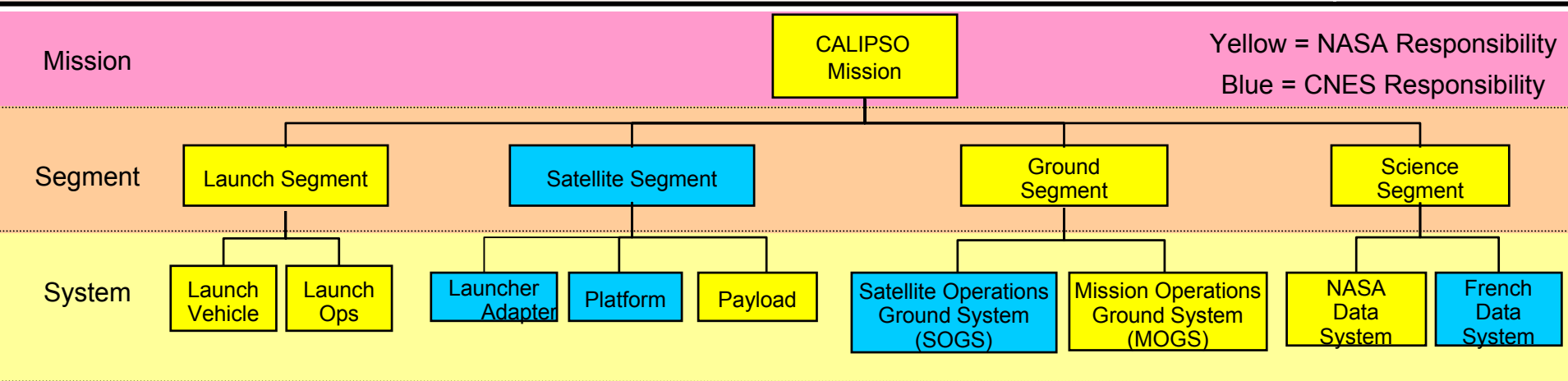
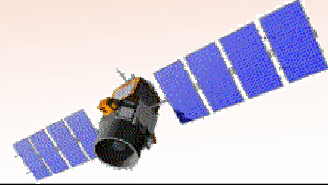
Institut Pierre Simon Laplace: French science studies lead, IIR algorithm development, data validation and archival



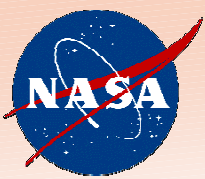
Ball Aerospace and Technologies Corporation: lidar and wide-field camera (WFC) development, instrument-to-payload integration, launch vehicle support, and science data downlink



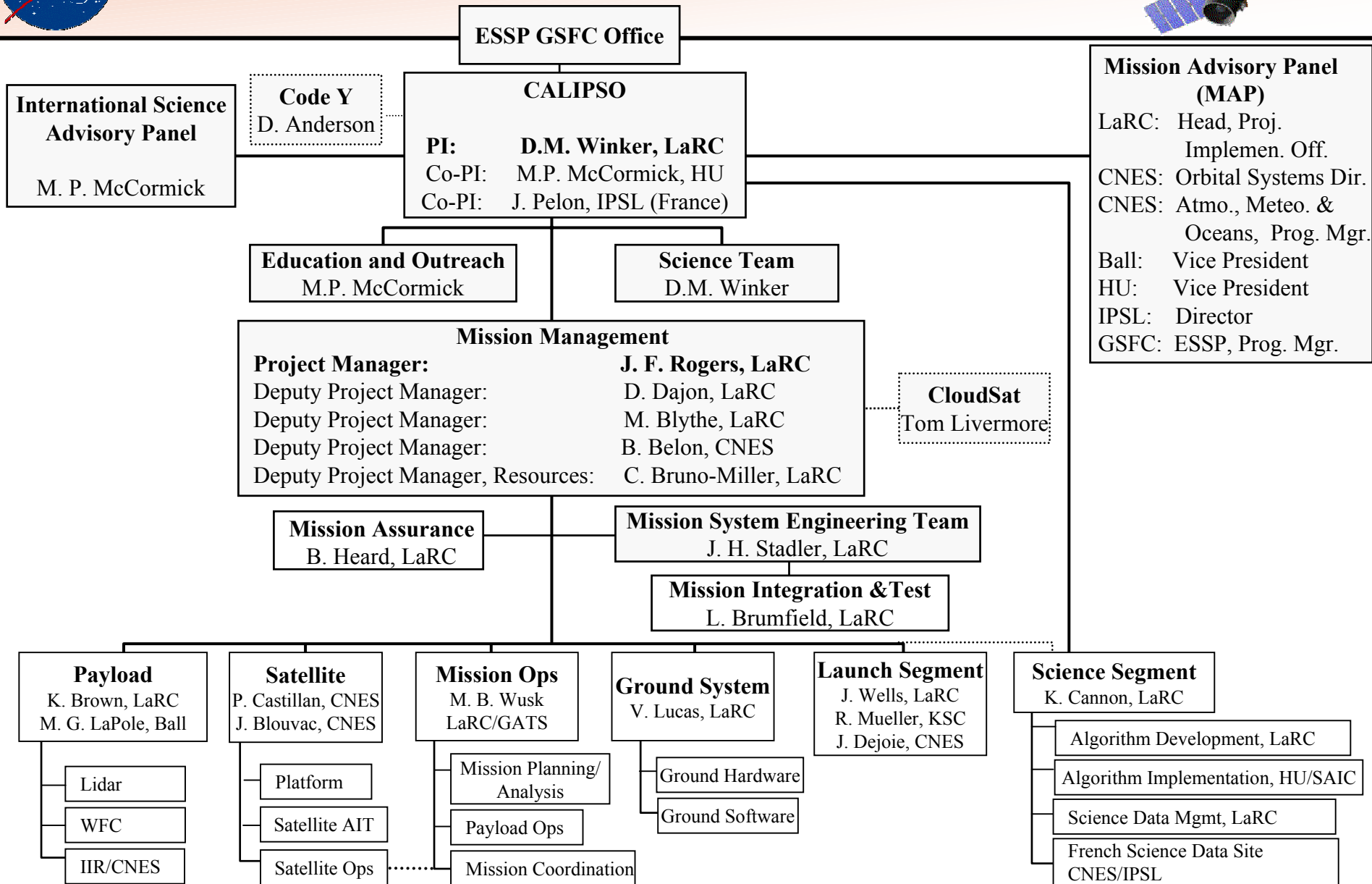
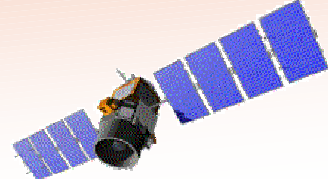
NASA/CNES Implementation

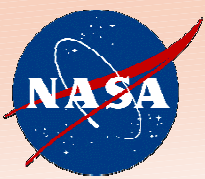


- Mission-level vs. Segment-level responsibilities
 - Segment to Segment interfaces are a mission level responsibility
 - Interfaces within a Segment are managed by the Segment lead

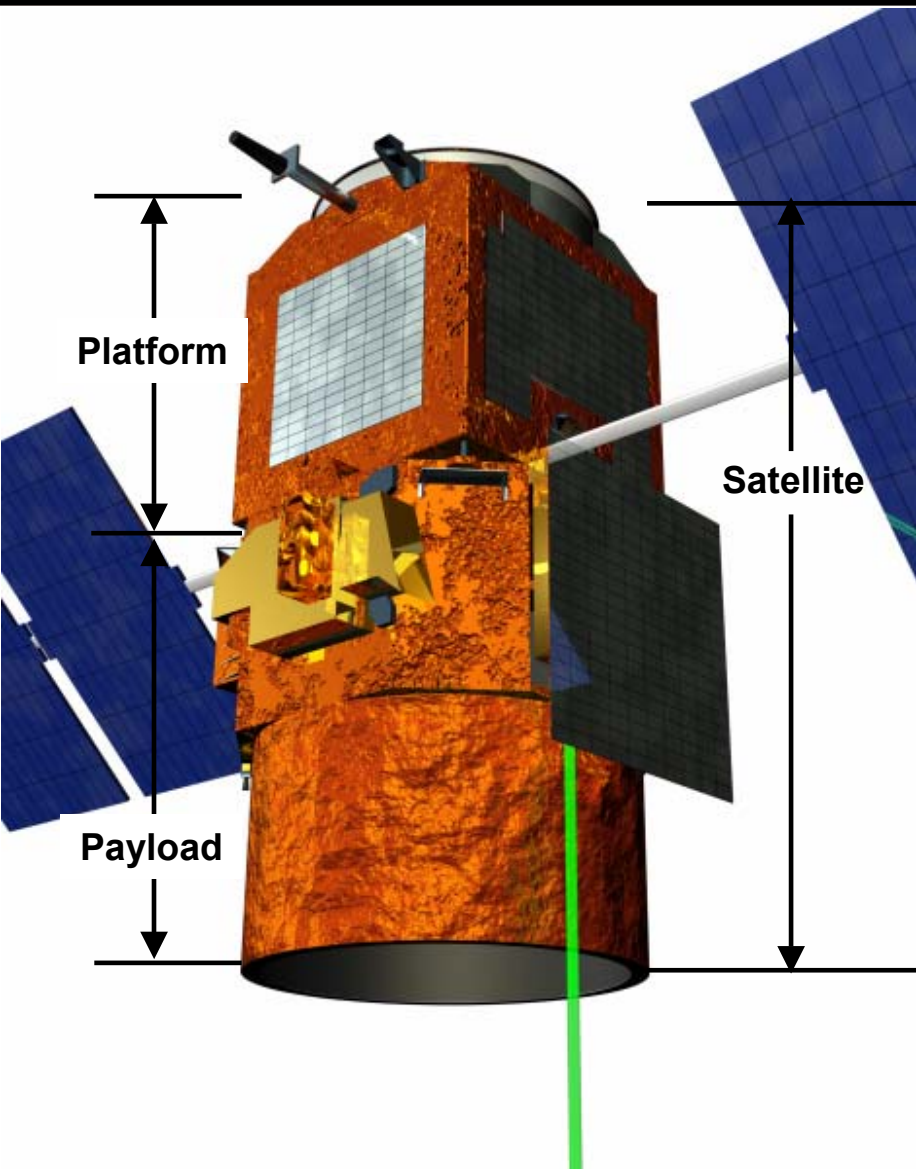
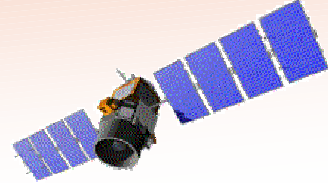


Mission Organization





Satellite Segment Overview



Platform

- Contributed by CNES
- COTS PROTEUS platform
- Services:
 - Power Generation, Storage & Distribution
 - Attitude and Orbit Control
 - Command Control
 - S-Band Telemetry System
 - Thermal Control
 - Satellite Health Monitoring

Payload

- Built by Ball (LaRC Contract)
- Science Instruments
 - Lidar
 - WFC
 - IIR (contributed by CNES)
- Payload Controller
- Science Data Sub-System
 - Solid State Recorder
 - X-Band Transmitter
 - X-Band Antenna

Overview

From: <http://www-calipso.larc.nasa.gov/implementation/>

The CALIPSO satellite will be developed to launch in 2005, followed by three years of on-orbit operation. The satellite consists of a science payload of three instruments integrated to an Alcatel [PROTEUS](#) spacecraft bus. CALIPSO will be monitored and commanded from CNES facilities in France.

The 36-month baseline CALIPSO mission is divided into the following five major phases:

1. **Ground Phase:**
from satellite integration to launch vehicle ignition;
2. **Launch Phase:**
up to satellite separation from the launch vehicle;
3. **Assessment Phase:**
up to satellite in-flight acceptance;
4. **Observational Phase:**
operational phase, includes science (data collection) and non-science (satellite orbit maintenance, non-nominal operations), until decision to cease science operations; and
5. **End-of-Life Phase:**
after ceasing science operations (deorbit).

During Assessment Phase, CNES is in charge of conducting the flight operations with the support of NASA. During Observational Phase, NASA is in charge of conducting the flight operations with the support of CNES.

NASA is primarily responsible for overall coordination of the operations during the Observational Phase, the operation of the payload, of the Mission Operations Ground System (MOGS), and the U.S. science data system.

CNES is primarily responsible for overall coordination of the operations during the Assessment Phase, the operation of the satellite (this includes maneuver planning and execution), the Satellite Operations Ground System (SOGS), and the French science data system.



Launch Vehicle

The CALIPSO satellite will be launched on a [Boeing Delta II 7420-10](#) launch vehicle in a dual configuration with the CloudSat satellite. The CALIPSO satellite shall occupy the upper berth position of the Dual Payload Attach Fitting (DPAF).

Instruments

CALIOP (Ball Aerospace)

Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP) is a two-wavelength (532 nm and 1064 nm) polarization-sensitive lidar that provides high-resolution vertical profiles of aerosols and clouds. Examples of this measurement capability can be found at the [LITE](#) homepage. CALIOP has three receiver channels: one measuring the 1064-nm backscattered intensity, and two channels measuring orthogonally polarized components (parallel and perpendicular to the polarization plane of the transmitted beam) of the 532-nm backscattered signal. The receiver telescope is 1 meter in diameter. The full-angle field of view of the telescope is 130 microradians, resulting in a footprint at the Earth's surface (from a 705-km orbit) of about 90 meters. Dual 14-bit digitizers on each channel provide an effective 22-bit dynamic range necessary to measure backscatter signals from both clouds and the molecular atmosphere. An active boresight system is used to maintain co-alignment between the transmitter and the receiver.

Lidar Specifications

Lidar type	Nd:YAG, diode-pumped, Q-switched, frequency-doubled
Wavelength	532 nm and 1064 nm
Repetition rate	20 Hz
Telescope aperture	1.0 m
Horizontal/vertical resolution	333 m/ 30 m
Data rate	316 kbps

Imaging Infrared Radiometer (IIR) (CNES)

A three-channel Imaging Infrared Radiometer (IIR) is provided by CNES, with algorithm development performed by the Institute Pierre Simon Laplace (IPSL) in Paris. It is a nadir-viewing, non-scanning imager having a 64 km by 64 km swath with a pixel size of 1 km. The CALIOP beam is nominally aligned with the center of the IIR image. The IIR uses a single microbolometer detector array, with a rotating filter wheel providing measurements at three channels in the thermal infrared window region

at 8.7 μm , 10.5 μm and 12.0 μm . These wavelengths were selected to optimize joint CALIOP/IIR retrievals of cirrus cloud emissivity and particle size.

IIR Characteristics

Wavelength range	8.7, 10.5, and 12.0 micron
Spectral resolution	0.8 micron
Instrument field of view/ Swath	1 km/ 64km
Data rate	44 kbps

Wide Field Camera (WFC) (Ball Aerospace)

The Wide-Field Camera (WFC) is a modified version of the commercial off-the-shelf Ball Aerospace CT-633 star tracker camera. It is a fixed, nadir-viewing imager with a single spectral channel covering the 620-670 nm region, selected to match band 1 of the MODIS (MODerate resolution Imaging Spectroradiometer) instrument on Aqua. The WFC is operated in a push-broom mode, collecting images with 125-meter spatial resolution over a 61-km cross-track swath centered on the CALIOP footprint. WFC data is used in IIR retrievals and also provides meteorological context for CALIOP data. WFC data also allows highly accurate spatial registration, when required, between measurements from CALIPSO and other instruments in the Aqua constellation.

WFC Characteristics

Wavelength range	620 to 670 nm
Instrument field of view / Swath	125 m / 60 km
Data rate	26 kbps

CALIPSO is one of a series of NASA missions designed to examine critical issues in [Earth system science](#). CALIPSO is a collaboration between NASA Langley Research Center and the French space agency Centre National d'Etudes Spatiales. Other members of the CALIPSO team are Ball Aerospace and Technologies Corporation, Hampton University, and the Institut Pierre Simon Laplace. The primary roles and contributions of the team members are:

Partners

NASA Langley Research Center (LaRC)

[NASA LaRC](#) leads the mission and provides overall program management, systems engineering, payload mission operations, science data validation, and data processing and archival.

Centre National d'Etudes Spatiales (CNES)

[CNES](#) provides the PROTEUS spacecraft and the Imaging Infrared Radiometer (IIR), and performs payload-to-spacecraft integration and spacecraft mission operations.

Ball Aerospace and Technologies Corporation (BATC)

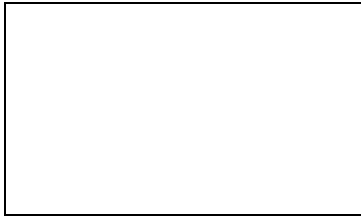
[BATC](#) develops CALIOP and the wide-field camera and provides payload integration, launch vehicle support, and science data downlink.

Hampton University (HU)

[HU](#), a historically black university located in Hampton, Virginia, leads the Level 2 CALIOP science algorithm implementation effort and manages the CALIPSO quid pro quo validation effort, education and public outreach program and International Science Advisory Panel.

Institut Pierre Simon Laplace (IPSL)

[IPSL](#) leads French science studies, IIR algorithm development, and contributes to science data validation.



The CALIPSO satellite is constituted of :

From http://smc.cnes.fr/CALIPSO/GP_satellite.htm

➤ a [PROTEUS platform](#) (Plate-forme Reconfigurable pour l'Observation, pour les Télécommunications et les Usages Scientifiques). This platform is designed for 500 kg mass satellites at launch.

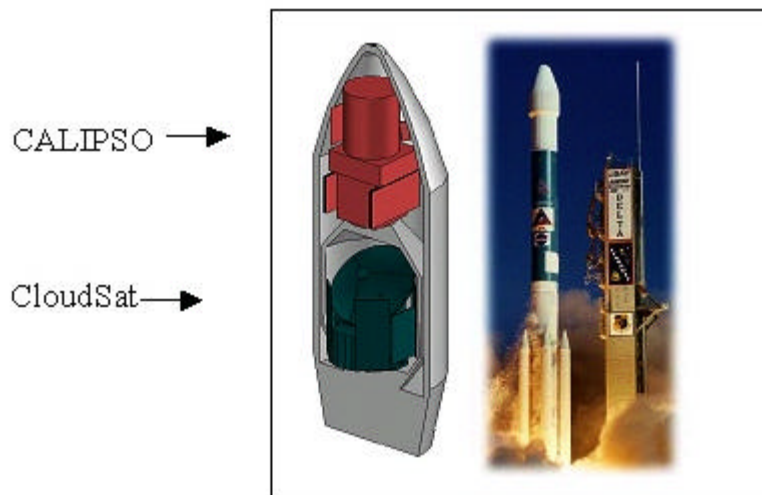
➤ a [payload](#) constituted of :

- a two channels [Lidar](#) (main instrument, equipped of a 1 meter diameter telescope),
- a [Wide-Field Camera](#) (WFC),
- an [Infrared Imager Radiometer](#) (IIR)

The satellite's main characteristics are :

Mass	635 kg
Power	560 W
S band telemetry	727 kbps for telemetry 4kbps for telecommands
X band telemetry	80 Mbit/s
Mission lifetime	3 years

The satellite will be put into orbit by a **Delta2** launcher supplied by **NASA**, and launched from **Vandenberg**, in **double launch** configuration with **CLOUDSAT**.



CNES Missions

Spot



Satellites: **Spot 2**, launched on 22 January 1990
Spot 3, launched on 26 September 1993
(stopped on 14 november 1997)
Spot 4, launched on 24 March 1998
Spot 5, launched on 4 May 2002

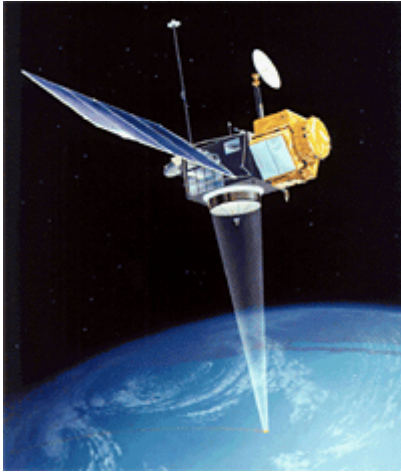
Mission: **Earth observation**

Altitude: **830 km**

The Spot family is designed and developed by the French space agency Cnes. The Spot system comprises several satellites, an orbit and mission control ground segment, a global network of receiving and processing stations, and an international product distribution and marketing network.

The spectral bands measured by the instruments have been carefully selected to match the Spot missions requirements, particularly for monitoring of crop and plant health, land management, topographic and relief mapping, ecosystem monitoring. Moreover, since Spot 2, the Doris instrument is onboard. Since Spot 4 Diode system able to localize the satellite in real-time.

The Topex/Poseidon mission



Satellite **Topex/Poseidon**
Launched **10 August 1992**
Mission **Measure sea surface
height**
Altitude **1336 km**

The Topex/Poseidon satellite was launched on 10 August 1992 with the objective of "observing and understanding the ocean circulation". A joint project between [Nasa](#), the US space agency, and [Cnes](#), the French space agency, it carries two radar altimeters and precise orbit determination systems, including the [Doris](#) system.

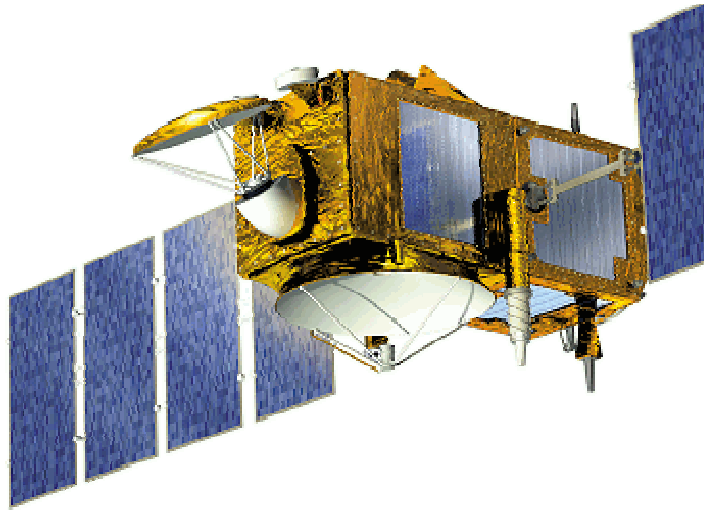
Topex/Poseidon is laying the foundation for long-term ocean monitoring from space. Every ten days, it supplies the world's ocean topography, or sea surface height, with unprecedented accuracy. Topex/Poseidon is a space laboratory.

On September 15, 2002 Topex/Poseidon assumed a new orbit midway between its original ground tracks. The former Topex/Poseidon ground tracks are now overflowed by Jason-1. This tandem mission demonstrates the scientific capabilities of a constellation of optimized altimetric satellites.

The Jason-1 mission

Jason-1 is the first [satellite](#) in a series designed to ensure continued observation of the oceans for several decades. It is the [follow-on to Topex/Poseidon](#), whose main features it has inherited ([orbit](#), [instruments](#), measurement accuracy, etc.), and is being developed jointly by [Cnes and Nasa](#). Satellite control and data processing operations will be performed by a new [ground segment](#).

- [Launch](#)
- Mission [goals](#)
- [Satellite](#)
- [On the tracks of Topex/Poseidon](#)
- [International cooperation](#)
- [Ground segment](#)



Jason's launch

Jason-1 was launched on December 7, 2001. The Jason-1 Launch vehicle is a Boeing Delta II 7920. The Delta vehicle is shared with another Nasa mission, Timed, with Jason-1 separated first. The launch site is Vandenberg Air Force Base.

Launcher



Boeing
Delta II
7920



Vandenberg Air
Force Base



CLUSTER

The [European Space Agency](#) (ESA) CLUSTER project, studies the interaction between the solar wind and the terrestrial magnetosphere. It observes phenomenons with characteristic scale ranging from a few hundred to a few thousands km.

The four CLUSTER satellites were launched in July and August 2000 by two Soyuz launchers for a two years mission.

The mission was granted an extension of three extra years operation in early 2002.

At first the instruments on board the four CLUSTER satellites were provided by selected scientific teams and funded by their space agencies. In the CLUSTER case 3 out of the 11 instruments of each satellite were funded by the CNES. After the failure of the launch of the first four CLUSTER satellites in 1996, the new CLUSTER flight models, identical to the first ones, were developed by the scientific institutes under ESA contracts.

SOHO

The SOHO project, first cornerstone, with CLUSTER, of the [ESA](#) Horizon 2000 program, is part of the European contribution to international scientific programs STSP and ISTP studying the Sun-Earth relations.

SOHO is an ESA satellite launched by NASA (which also receives the scientific data through its DSN network) and which instruments have been conceived and realized by European and american scientists.

The ESA Scientific Program Committee (SPC) approuved the 5 years SOHO mission extension after its nominal lifetime, which means from May 1998 to April 2003, then at the beginning of 2002, a new extension until March 2007. This eleven years lifetime (instead of the 2 initially decided) will enable to cover the totality of a solar cycle.

France participated greatly to the realization of 5 out of the 12 instruments intended to study several aspects of the Sun : the heliosismology, the electromagnetic radiation, the [plasma](#) and the [solar wind](#).

SPI

SPI Integral the Gamma Ray Spectrometer on board Integral Spacecraft.



The Integral project (INTErnational Gamma-Ray Astrophysics Laboratory), on board which is SPI instrument, is dedicated to the study of gamma-rays. It was successfully launched on October 2002, the 17th.

SPI will observe with unrivalled spectral resolution and sensitivity the emissions of gamma-rays specific to nuclear reactions leading to the creation of elements within the Universe. Thus it will provide an understanding of the physical characteristics of specific celestial bodies such as supernovae, neutron stars, black holes and active galaxy nuclei.

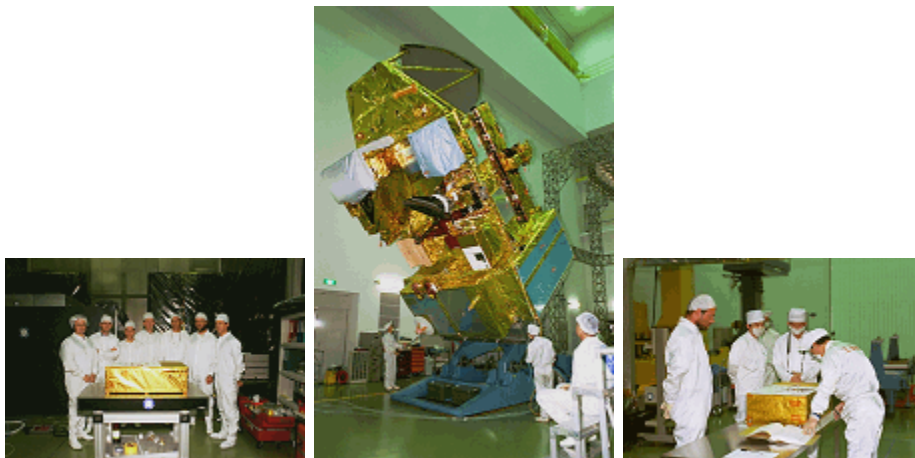
POLDER

POLarization and **D**irectionality of the **E**arth's **R**eflectances

The French space agency, **CNES**, has developed the **POLDER** instrument, which flew on [ADEOS](#) (**AD**vanced **E**arth **O**bservation **S**atellite), developed by the Japanese space agency, **JAXA**. This was the first **French/Japanese** cooperative project in the area of Earth observation.

A second, identical instrument flew on [ADEOS-2](#), successor to ADEOS, until October 2003.

POLDER is a wide field of **view imaging radiometer** that has provided the first global, systematic measurements of spectral, directional and polarized characteristics of the **solar radiation** reflected by the **Earth/atmosphere system**. Its original observation capabilities have opened up new perspectives for discriminating the radiation scattered in the atmosphere from the radiation actually reflected by the surface.



Pictures of POLDER 2 sensor integration phase on ADEOS-2.

OVH

OVH, acronym for **OVerHauser magnetometer** is a **proton-precession magnetometer** measuring the magnetic field amplitude.

It has been developed by the **LETI** (CEA) and provided by **CNES** and was embarked on board the **danish ØRSTED** satellite, along with other instruments.

ØRSTED has been successfully launched on the **23rd of february, 1999**, from Vandenberg, California.

The satellite is **still flying and acquiring** measurements of the Earth's magnetic field.

ODIN

ODIN is a dual purpose project dedicated to the study of both astronomical objects and the Earth's atmosphere.

The **ODIN** payload is a common resource and approximately half of the available spacecraft time shall be used for each scientific discipline.

ODIN is a Sweden project in cooperation with France, Canada and Finland.

The payload is composed of two main instruments :

- ▶ a **Sub-Millimeter Receiver (SMR)**. Radio signals are analysed by two Swedish auto-correlators and by an **Acousto-Optical Spectrometer (AOS)** developed by France.

- ▶ **Odin Spectrometer and InfraRed Imager System (OSIRIS)** developed by Canada.

ODIN was **launched** on **February 2001 the 20th** with the Russian **START-1**, rocket, from Svobodny, Russia, for a **2 years** mission duration.

DORIS

DORIS (Doppler Orbitography and Radiolocation Integrated by Satellite) is Positioning System developed and monitored by CNES with participation of [IGN](#) and compounded of :

- ▀ a **network** of about **50** earth-based emitting **beacons**
- ▀ **DORIS receivers** on board satellites (**SPOT** series, **TOPEX/Poseidon**, **Jason**, **ENVISAT...**)
- ▀ a Data Processing Center

DORIS aims are :

- ▀ precise orbit determination, satellite navigation
- ▀ **geodesy** and study of the **solid earth** (geoid, positioning, tectonic monitoring, polar motion...)

SCARAB

Scarab is a four channels radiometer (visible, solar, total and infrared), made to measure the Earth's Radiation Budget. This scientific instrument was developed by LMD (Laboratoire de Meteorologie Dynamique) and by CNES (Centre National d'Etudes Spatiales).

The **Earth's Radiation Budget** is the net radiation flux, in other words the **difference between the solar radiation absorbed** (by the atmosphere or land), **and the infrared radiation** that escapes from the atmosphere into space. The budget for such radiation fluxes, which constitute the **only exchanges of energy between the Earth and space**, is an essential element in climatic balance. Though the Earth's Radiation Budget balances out in terms of annual global average, the same is not true on a regional scale, depending on the seasons. In order to **understand how the Earth's "climatic system" works**, it is vital to map Earth's Radiation Budget components and monitor its variation over time. Climatic change (linked to human activity, for example) can only occur in conjunction with a change in these budgets.

Initial estimations of the Earth's Radiation Budget date back to the **beginning of the century**, but it is only over the **past twenty years** or so, with the development of **satellites**, that **quantitative measurements** have become possible.

In addition, CNES has a multitude of mission currently in all phases of development.

EXHIBIT 3

List of Technical Documents

EXHIBIT 3

List of Technical Data

The table below summarizes the information covered in the International Agreement between NASA and the Centre National d'Etudes Spatiale (CNES). Listed are only those items a.i. solutions have potential to export.

Technical Data Description
Mission Integration Working Group (MIWG), Ground Operations Working Group (GOWG), and Launch Operations Working Group (LOWG) will be conducted. Discussions will involve the following.
• Spacecraft to Launcher Interface Control Document (ICD)
• Spacecraft/Launch vehicle interface issues
• Technical splinter sessions on an "as needed" basis
• Telecoms on specific topics on an "as needed" basis
NASA/CNES Reviews and Launch Site Activities
• Flight Readiness Review
• Launch Readiness Review
• Launch Management Coordination Meeting
• Mission Dress Rehearsal
Payload Processing, Launch Vehicle Integration, and Test
• Payload Requirements Document
• Launch Site Support Plan
• Launch Site Test Plan
• Launch Site Procedures
• Combined System Test
Review/Comment on the Following Spacecraft Deliverables
• P/L Launch Site Test Procedures, Final (S/C Stand Alone and Integrated)
• Final Launch Window Constraints
• P/L Launch Checklist/Mission Constraints
• P/L Dress Rehearsal Requirements
Review/Comment on the Following NASA Deliverables
• Post-Launch State Vector
• Coupled Loads Analysis-Preliminary
• Coupled Loads Analysis-Final
• Preliminary Mission Analysis
• Final Mission Analysis
• RF Link and Compatibility
• Post Launch Quick Look Analysis
• FRR and LRR High Level Minutes

EXHIBIT 4

Technology Transfer Control Plan (TTCP)

Technology Transfer Control Plan
To accompany the
Technical Assistance Agreement
Between
a.i. solutions, IncorporatedC (U.S.) and Centre National d'Etudes Spatiale (CNES),
(France)
for the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO)

General: This Technology Transfer Control Plan (TTCP) is intended to supply guidance and direction to employees of a.i. solutions Incorporated (ais) for protecting United States technology from inadvertent and illegal transfer to foreign nationals employed by any of the parties to the subject Technical Assistance Agreement (TAA) or any other agreement concerning CALIPSO. To be effective, a TTCP must identify what technology may be transferred or co-developed through discussion, display, or by physical means such as paper, e-mail, or Internet. It must identify to whom such transfers may be made and it must prescribe means to report the transfers and any violations of the terms of the TAA. Lastly, it must provide a means to both train employees and record that training.

Background: The National Aeronautics and Space Administration (NASA) has negotiated a formal Memorandum of Understanding or MOU with the Centre National d'Etudes Spatiale (CNES) that has the former agree to use its launch services contract to launch the cooperatively-built CALIPSO; to support its operations once on orbit, checked out, and functioning; and to share the Earth science data that CALIPSO will produce. The MOU calls for the signatories' centers and contractors to produce a detailed breakout of the tasks and responsibilities of the parties called the CALIPSO Project Plan that shall be empowered by the MOU and have the force of an international agreement.

CNES will provide the PROTEUS spacecraft bus, and the Imaging Infrared Radiometer (IIR) instrument, and performs payload-to-spacecraft integration of the those, plus the other two instruments (Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP) and Wide-Field Camera (WFC) both provided by NASA, who purchased them from Ball Aerospace) and CNES will also conduct spacecraft mission operations, under NASA supervision.

Analex Corporation has contracted with a. i. solutions, Inc. to provide the on-site payload-to-launch vehicle integration services under the ELVIS contract with NASA's Kennedy Space Center (which operates NASA's facilities at Vandenberg AFB, California.) a. i. solutions, Inc. role will be to provide rapid, accurate, and complete assessments of analytical items throughout the life cycle for CALIPSO and build cycle for the vehicle. a. i. solutions, Inc. shall perform a review of Launch Service Provider (LSP) provided documents in order to ensure prompt technical assessments of all relevant issues that arise during the integration process. Evaluation of these issues may require a. i. solutions, Inc. to perform an independent analysis in order to verify or better understand the Launch Service Provider (LSP) data. Documentation of evaluations and recommendations to NASA shall be such that NASA approval of analyses and/or direction to the Launch Service Provider (LSP) for corrective actions can be accomplished.

a.i. solutions personnel will perform the work from Kennedy Space Center (KSC), and on site at Vandenberg AFB (VAFB), California to get the launch vehicle and CALIPSO payload integrated and ready for launch, and will assist with other tasks required of it by the CALIPSO Project Plan and the ELVIS contract Statement of Work or SOW.

What may be Transferred: The TAA authorizes a.i. solutions to carry out the tasks described in the CALIPSO Project Plan and the ELVIS SOW and to permit CNES's employees to have access to the technical documents described in the TAA. Thus, ANNEXES B and C and Exhibit 2 of the TAA, as allowed in the final State Department license; i.e., the TAA in the form and with the provisos returned to a.i. solutions by the Office of Defense Trade Controls, describe the techniques, know-how, and technical data that are permitted to be shared.

Training: All a.i. solutions employees working on CALIPSO are required to have completed Kennedy Space Center (KSC) web based training lessons: "Basic Export Control Program," "Foreign National Visit Processing," and Technical Information Exchange." These lessons are provided in CD-ROM format for those who do not have access to the internal KSC website or the NASA SOLAR website. All a.i. solutions employees working CALIPSO will read the CALIPSO Project Plan and the ELVIS SOW. These establish the procedures they are to follow and the limits to their cooperative work with CNES employees.

All training will be recorded by the a.i. solutions Program Manager (PM.)

Operations: From the first moment that a.i. solutions and CNES personnel start work until the final moment of such cooperation, a.i. solutions personnel will observe the limits to cooperation that the TAA permits. Logs or other records of topics discussed, documents accessed, issues resolved, and other cooperative work will be kept up to date and will be accessible to employees, managers, and NASA alike. Where the topics discussed and the work done are clearly within the framework of the TAA, these records need not be elaborate or detailed. Where there is any question of whether or not the material worked with falls within the bounds of the TAA, then detailed records of what was discussed, with whom, when, and where must be made. Such records must also be available as before, but it is the responsibility of the senior employee involved to make the a.i. solutions PM aware of the matter as soon as possible. If at any time any a.i. solutions employee is uneasy about what is being done or discussed, it is perfectly appropriate for the employee to terminate the activity at once and report it to the a.i. solutions PM or such person as the a.i. solutions PM has designated to receive these reports.

Physical security will be provided by NASA and Analex in accordance with the procedures specified by the Commander, 30th Space Wing, USAF. These procedures are stringent and call for 100% escort for all foreign nationals while on Vandenberg AFB. Compliance with these procedures supports this TTCP.

NASA has published its direction, procedures, and guidelines in NASA Program Directive (NPD) 1371.5, Coordination and Authorization of Access by Foreign Nationals and Foreign Representatives to NASA and NASA Program Guidance 1371.2, Coordination and Authorization of Access by Foreign Nationals and Foreign Representatives to NASA, use of which is mandated by the ELVIS contract. NASA has also implemented an automated visit

control system, the NASA Foreign National Management System (NFMMS). NASA's processes for handling foreign nationals call for checks of various U.S. Government agency lists to determine if individuals have been listed as barred from doing business with the Government or are otherwise to be carefully watched. NASA visit processes will be used to manage visits by CNES personnel to Vandenberg and to meetings, etc., held on the subject of CALIPSO. Compliance with these procedures supports this TTCP.

KSC Procedures for foreign national access to KSC and CCAFS are contained in Kennedy Handbook (KHB) 1610.1, KSC Security Handbook, Section 406. These call for a Technology Transfer Risk Assessment (TTRA) for visitors from certain countries and for any visitor who will be on station more than a total of 30 days in one year. This procedure is specifically extended for CNES personnel working at Vandenberg for more than 30 days in one year. Compliance with these procedures supports this TTCP.

Recording: All records, logs, notes, etc., that result from the operation of this TTCP will be maintained under the control of a.i. solutions' Empowered Official for five (5) full years after the expiration date of the Technical Assistance Agreement; i.e., five years from December 31, 2007.